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# U. S. NAVAL AIR DEVELOPMENT CENTER

JOHNSVILLE, PENNSYLVANIA

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ENGINEERING DEVELOPMENT LABORATORY

REPORT NO. NADC-ED-L6280

20 SEPTEMBER 1962

COMPONENT RELIABILITY TEST

OF

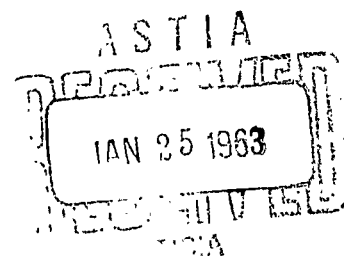
AUTOMATIC LANDING SYSTEM RELAY BOX

BUREAU OF NAVAL WEAPONS

WEPTASK NO. RM-421-000-100-1-001-0000

PROBLEM ASSIGNMENT RM-421

REPRODUCED FROM THE ORIGINAL  
AS SUPPLIED TO THE BUREAU OF NAVAL WEAPONS  
BY THE ENGINEERING DEVELOPMENT LABORATORY



U. S. NAVAL AIR DEVELOPMENT CENTER  
ENGINEERING DEVELOPMENT LABORATORY  
JOHNSVILLE, PENNSYLVANIA

REPORT NO. NADC-ED-L6280

Subj: BuWeps Weptask No. RM-4201-001/202-1/F017-06-05, Problem  
Assignment No. RM-43-1; Automatic Landing System Relay Box,  
Component Reliability Test of

1. General. This report describes the component reliability test of the automatic landing system (A.L.S.) relay box, NADC part No. D-11967-1. A test setup is to be assembled as shown in figures 1 and 2. The following equipment is required to perform the reliability test of the A.L.S. relay box.

- a. Megger, 500 volt
- b. Ohmmeter, Simpson 260
- c. Test Panel, figures 1 and 2

The following checks and tests are to be performed on each unit under test. Record comments on the Test Data Sheet.

2. Visual Inspection. Insure that relays have been reliability tested. Visually inspect the unit for obvious faults or poor connections.

3. Insulation Check. Check the leakage resistance between all connector pins and case with a 500-volt megger except those shown below. Leakage resistance should be more than 50 megohms.

J1 - C, D, E, F, N, V, W  
J2 - A, G  
J3 - B

4. Resistance Check. Check the resistance between the points shown below. Resistance shall be within 10% of the values given.

J1 - C to Case 330 ohms  
J1 - E to Case 330 ohms  
J1 - P to J1 - Q 540 ohms  
J1 - R to J1 - S 300 ohms  
J1 - T to J1 - U 180 ohms  
J1 - V to Case 340 ohms  
J2 - A to Case 340 ohms  
J2 - B to J2 - D 220 ohms  
J4 - A to J4 - B 220 ohms  
J4 - D to J4 - E 180 ohms

5. Continuity Check. Check for continuity between the pins of connectors shown below.

|                  |                  |
|------------------|------------------|
| J1 - C to J1 - D | J1 - N to Case   |
| J1 - E to J1 - F | J1 - P to J4 - E |
| J1 - G to J1 - H | J1 - S to J4 - A |
| J1 - J to J1 - K | J1 - V to J1 - W |
| J1 - L to J2 - C | J2 - B to J3 - A |
|                  | J2 - G to Case   |

6. Bench Operation. With all switches off, connect unit and power (28 v.d.c.) to test panel. Perform the operations listed in the left column and verify the desired results shown in the right column.

| <u>Operation</u>                             | <u>Result</u>  |
|--|--|
| 1. Turn the STANDBY switch ON.               | 1. STANDBY 1 and STANDBY 2 lights come ON.                                   |
| 2. Key CORNER REFLECTOR switch to UNCOVERED. | 2. CORNER REFLECTOR UNCOVERED light comes ON for 3 minutes.                  |
| 3. Key ALS switch to ENGAGE.                 | 3. STANDBY 1 and STANDBY 2 lights go OFF and ENA 1 and ENA 2 lights come ON. |
| 4. Key ALS switch to WAVEOFF.                | 4. ENA 1 and ENA 2 lights go OFF and STANDBY 1 and STANDBY 2 lights come ON. |
| 5. Turn the STANDBY switch OFF.              | 5. STANDBY 1 and STANDBY 2 lights go OFF.                                    |

7. Vibration Test. Mount relay box on vibration test table. Perform the following installation in aircraft.

- Vary the vibration frequency from 10 to 50 cps. with an applied double amplitude of 0.01 inch to determine points of resonance. If any resonance is found, the frequency shall be increased until the resonance does not exceed 0.01 inch.
- Vibrate at each resonant point for fifteen minutes with an applied vibratory acceleration of 1.5 g.p.s. or less. The total time shall not exceed 0.01 inch.
- Vibrate at 55 cps. and 0.02 inch double amplitude for 15 minutes.

REPORT NO. NADC-ED-1288

3. During vibration tests, repeat paragraph 6 every 15 minutes.
8. Final Tests. Repeat the tests and checks of paragraphs 6 through 7.

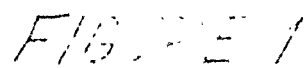
Prepared by:

*George M. [Signature]*

Approved by:

*W. W. [Signature]*

Supt., Target System M-1





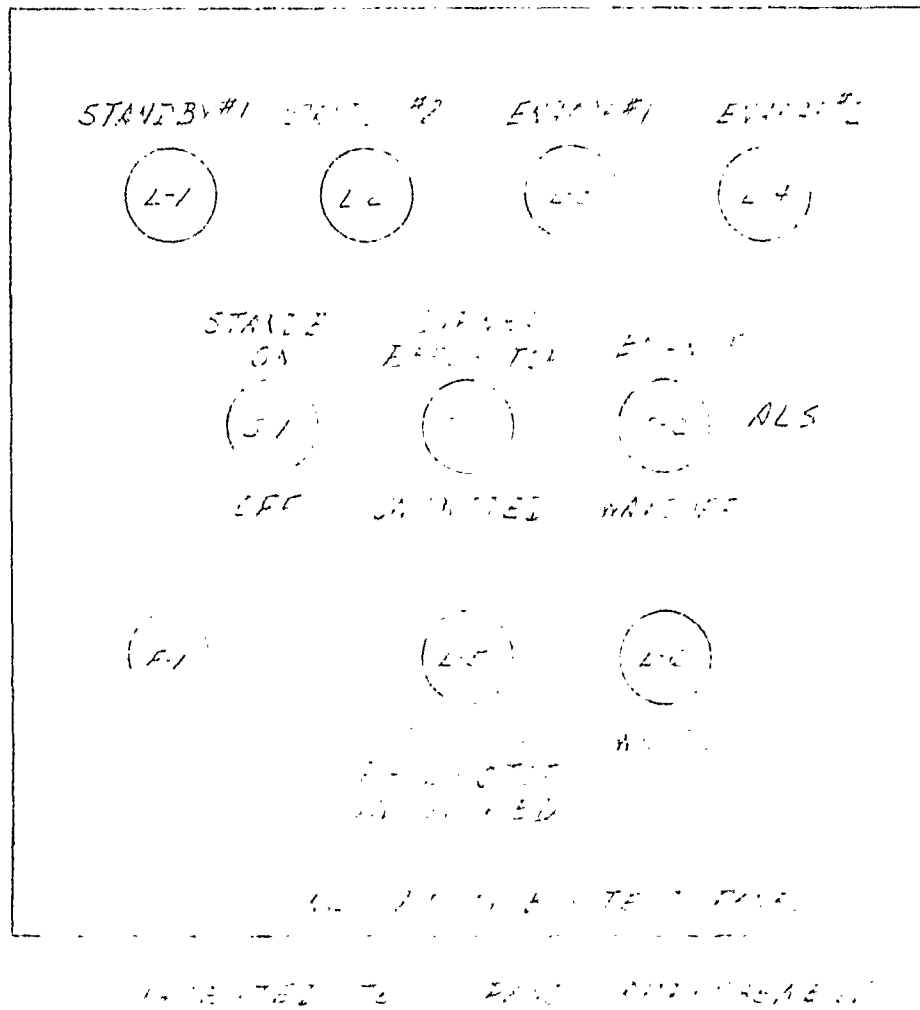


FIGURE 2

TEST DATA SHEETA.L.S. RELAY B7X NADC-D-11967-1IDENT. NOTESTERDATE

| <u>PAGE</u> | <u>TEST</u>         | <u>INITIAL</u> | <u>FINAL</u> |
|-------------|---------------------|----------------|--------------|
| 2.          | VISUAL INSP.        |                |              |
| 3           | INSULATION<br>CHECK |                |              |
| 4           | RESISTANCE<br>CHECK |                |              |
|             | U1-C TO CASE        |                |              |
|             | U1-E TO CASE        |                |              |
|             | U1-P TO U1-Q        |                |              |
|             | U1-R TO U1-S        |                |              |
|             | U1-T TO U1-U        |                |              |
|             | U1-V TO CASE        |                |              |
|             | U2-A TO CASE        |                |              |
|             | U2-B TO U2-D        |                |              |
|             | U4-A TO U4-B        |                |              |
|             | U4-D TO U4-E        |                |              |

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